Reply Comments – NBP Public Notice # 30

Re: GN Docket Nos. 09-47,09-51, and 09-137

To the OIDA and intended to the attention of Chairman Genachowski,

We would like to express our support, to be shared with the FCC, with your referenced letter below. Chiral Photonics is a small company that has been working since 1999 to develop and introduce fiber-based components that are furthering the R&D goals referenced in your letter. For example, we are providing both telecom and datacom market leaders with high-density, optical, multi-channel interconnects. These interconnects which are being explored for next generation 100 Gb/s + systems offer an affordable path to much more ubiquitous needs in the future. In our case, this effort has been self-funded due to the lack of corporate and even VC funding which has shied away from photonics space since the bubble of 1999. However, this technology is based on home-grown photophysics and advanced automated manufacturing techniques conceived, designed and implemented in the US by proven entrepreneurs and dedicated engineers and scientists. This work can support much more basic research than we are capable of alone and has spawned projects that have applications ranging from the smart grid to biomedical diagnostics in addition to these interconnects which are enabling next-generation photonic integrated circuits.

We have knowingly taken a bootstrap approach to our business as we have proved out this technology to ourselves. We are emerging from a long but promising R&D cycle and are slowly growing but this technology is at risk, as are many others, because there is now no serious investment with a longer term outlook in photonics. Even if one shoulders the initial risks, as we have, there is very little stomach for investment in companies who are not immediately accretive to sales and profits. We fully support the initiatives advocated by the OIDA. We are sure that these not only will serve the country's fast-growing technological and infrastructure needs but can readily see the knock-on effects that this will have for other industries, the creation of new and innovative jobs for every skill level and the strong returns for investors and the country as a whole if we can set our sights just slightly beyond immediate gratification.

Thank you for your interest and your attention to this matter.

Sincerely,

Dan Neugroschl
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OPTOELECTRONICS INDUSTRY DEVELOPMENT ASSOCIATION

December 29, 2009

The Honorable Julius Genachowski
Office of the Chairman
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: Ex Parte – NBP Public Notice # 22, GN Docket Nos. 09-47, 09-51, 09-137

Dear Chairman Genachowski:

The Internet will become a national security and economic impact issue during the next decade. Is the FCC really prepared?

The Optoelectronics Industry Development Association (OIDA), which represents the community that designs, develops, and manufactures the fiber and optoelectronic components that drive the Internet, is now extremely worried on a number of fronts. These concerns were emphasized at a recent OIDA conference held in Santa Clara, California[i]. The focus of the conference was to discuss how to reach the next generation of optoelectronics that will be necessary to drive the ultra high capacity communications infrastructure in the U.S., from the edge, through the data center, to the core. This was a vertically integrated technical conference that attracted speakers from the communications carriers (AT&T, Verizon), systems companies (Ciena, Cisco, Alcatel), media content providers (Google, Facebook), as well as the optoelectronics components community (JDSU, Finisar, Oclaro)[ii].

Issues at the forefront of every sector were:

1. Traffic volume is accelerating rapidly – the networks already cannot cope. Even if everyone was plumbed with high performance broadband, the access times will become frustratingly slow, and we can expect these to slow further during the decade[iii]. Technologists are openly debating whether network choking could bring the Internet to a standstill. If it does, we have a ***national security and economic impact issue***.

2. The majority of optoelectronic component suppliers today manufacture their parts in Asia. Many are in the process of transferring both design and development off-shore[iv]. The plumbing of the Internet will become designed, developed and manufactured in Asia. This may also become a ***national security and economic impact issue***.

3. Commercial (not academic) optoelectronics research and development investment (R&D) has not kept up with the demand for higher performance communications. As the industry debates future core bandwidth needs of 400 Gbps and 1 Tbps, technologists are

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wondering how they will develop the technologies needed to get there. Without strong industrial R&D, U.S. companies will struggle to create the next generation platforms (to ease network choking). If the only technology the U.S. can purchase is from Asia, then this may become a ***national security and economic impact issue.*** OIDA recently submitted to the FCC an R&D list for the optoelectronics industry[v].

   a. Please review the Appendix which shows a typical R&D investment by a U.S.-based optoelectronics company manufacturing in Asia. This is hardly enough to prevent a ***national security and economic impact issue*** for the U.S.

4. Without a universal glass platform (UGP) for the Internet (i.e., fiber optics in the edge, data center, and core), the United States will not be able to take advantage of advanced, high speed applications and opportunities to drive innovation. In fact, U.S.-based media companies will look to other bandwidth-rich countries to house and sell their products.

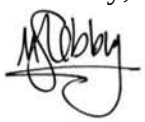
   a. U.S.-based media companies risk losing significant market value if they do not have a UGP to support their content-rich, applications-driven, business model.

   b. Existing carriers also risk losing market value, as Asian competitors will have the technology to handle bigger capacity in the network.

5. Perhaps the U.S. government should commission a study of what would happen if there were no more optoelectronic innovation in this field? For example, if optical modules stayed the same size and speed as they are today – if they are not further integrated and miniaturized to achieve optimal cost and performance gains – the negative impact on cost and performance would indeed be huge. A study could set funding priorities accordingly and perhaps prevent our communications infrastructure from becoming predominantly designed, developed and manufactured offshore.

We appreciate the opportunity to present our views to you for consideration as you finalize the plan. Please let me know if there is any additional information we can provide to elaborate on any of the above.

Sincerely,



Michael Lebby, President
Optoelectronics Industry Development Association (OIDA)
Washington, DC

Appendix

The photonics industry is in need of big technology developments to support the network bandwidth growth required by the Internet. Two examples of such new technology developments are:

1. High-speed computer to computer interconnects to solve interconnect bandwidth limitations in high performance computers.

2. Photonic Integrated Circuit (PIC) development to drive smaller size 40 Gbps and 100 Gbps optics, and as well to develop modules needed for 400 Gbps to 1 Tbps transmission speeds in the core. This technology is very expensive to develop. The most likely locations for this development are the large, publicly traded optoelectronics companies such as Finisar, Oclaro, Avago, JDSU, and OpNext, who own their own GaAs (gallium arsenide) and InP (indium phosphide) fabrication facilities.

At the recent OIDA annual meeting, one of these companies presented the following simple calculation[vi]:

> The total market for the transceivers and transponders that these companies sell is about $2.1 billion in 2009, according to LightCounting. The publicly traded companies in this industry are between 20% and 40% gross margin, with 40% being hit by one publicly-traded optics company prior to the most recent economic downturn. With these margins, 12% R&D to sales is the maximum to allow a good business model and return to shareholders. This is $252 million annually. While this seems like a lot of money, this must fuel all the product development as well as technology development that these companies do. A good rule of thumb is 10% of the R&D expense (or approximately 1% R&D to sales) can be set aside for technology development. For this industry, this is $21 million.

Completing these major technology developments and productizing them will cost much more than $21 million, so it is clear that if the networking and communications industry and the U.S. government are relying on publicly-traded optics companies to fund this next generation technology research and development, it just isn't going to happen.

In response to NBP Public Notice #22, OIDA submitted comments which included an R&D list[iv] as well as a letter to Commissioner Genachowski, dated December 8, 2009[vii].

[i] OIDA Annual Forum Agenda (http://www.oidaconnect.org/pdfs/OIDAForum_FinalAgenda_rev.pdf)

[ii] OIDA Annual Forum Executive Summary (http://www.oidaconnect.org/pdfs/OIDA_Forum09_ExecSummary.pdf)

[iii] Messages from the OIDA Annual Forum for the FCC on Broadband Policy: *Is 2012 a mystical Mayan Hollywood fantasy or the year broadband communications died?* Guest editorial by John Dexheimer, President, Lightwave Advisors Inc. (http://www.oidaconnect.org/pdfs/Dexheimer_BroadbandDoomsday2012.pdf)

[iv] OIDA testimony for China Commission (http://oida.org/sites/default/files/Lebby_China_Testimony032409_0.pdf)

[v] Response to NBP Public Notice #22: *Research agenda for the next decade for the fiber optics industry* (includes a list of projects that will help keep the U.S. broadband initiative competitive as well as the creation of a strong technological infrastructure) (http://www.oidaconnect.org/pdfs/FCC_Comments_120809.pdf)

[vi] OIDA 2009 Annual Forum, Julie Sheridan Eng, Vice President, Transceiver Engineering, Finisar Corporation

[vii] Response to NBP Public Notice #22: Letter to Commissioner Genachowski from the OIDA Board of Directors, dated December 8, 2009 (http://www.oidaconnect.org/pdfs/OIDA_Input_Genachowski_120809.pdf)